To the Commission:

I have read both the Commission's and NTIA's public notices and submit for consideration the following comments, both in response to the specific questions and in addition thereto. Forgive me in advance if my responses are incomplete or uneducated as much of both public notices were (perhaps deliberately) vague in places.

In its notice, NTIA gave some specific examples of technologies and innovations being considered for this test-bed. Those included: "Examples of technologies/services that could be considered in the Test-Bed include: high-power broadband, public safety interoperability, adaptive technologies (geo-location, frequency avoidance, waveform detection), advanced antenna technologies, sharing between federal and non-federal mobile satellite systems, advanced modulation techniques, multiple input/multiple output systems, extensions to third generation wireless services for public safety and federal users, mobile mesh networking, and geographic sharing. The Test-Bed may also be used to evaluate new frequency assignment/coordination techniques such as the web-based capability in the 70/80/90 GHz bands or sharing using the interference temperature concept." Most of these technologies are going to require frequencies in the SHF and higher bands, and in many cases, most are going to require more than the 20 MHz (10 MHz from NTIA and 10 MHz from FCC) suggested, so my advice must include having multiple test-beds, each being for a specific technology.

Given the list of NTIA's examples, the test-beds ought mostly to be comprised of contiguous spectrum. I think it is premature to consider trade-offs between TDMX or FDMX until candidate frequencies within the electromagnetic spectrum have been chosen for these test-beds. The trade-offs must consider factors such as link losses, weather and environmental factors for a given frequency, and the mode of communication, and frequency band choice impacts each of these factors differently.

Without being restricted to spectrum already shared, the FCC should give priority and first consideration to spectrum already shared by federal, non-federal, and private users, as this will permit speedy implementation. This should be followed by federal/non-federal spectrum which is coadjacent. Beyond these 'priorities' of allocation, I have no problem with the entire spectrum being considered.

I also think that while the existing experimental service under Part 5 should remain essentially the same, I have no problem with adding, as a Subpart these test-beds which, as a separate service within the experimental service might be entitled to greater protection from interference than the existing experimental licensees. Within this additional Subpart, the newly created 'Shared Test-Bed Service' could enjoy many of the protections incumbent licensees of services outside the experimental service enjoy; however, allocation of specific frequencies within this new service may

require coordination (particularly between competing users), so where appropriate, the Commission should make such coordination an essential feature of the service. Coordination among disparate users should consider time-sharing of frequencies to be shared, such that as many participants as possible may develop new technologies.

FCC Question 7 speaks for itself, and I would only answer it with an unqualified "Yes." The Commission should maintain its existing relationship with users of this spectrum - that is, as a regulator; however, insofar as many of these new technologies may be unknown to the Commission, I see no reason why Commission engineers and policymakers couldn't actively participate from the standpoint of learning from the test-bed users' efforts in order to establish more appropriate regulatory schemas for new technologies. In fact, there may be times where as a condition of granting an instrument of authorization, the Commission might wish to assign a particular engineer or policymaker to a licensee/permittee to participate in the study/experiment. To this end, I would also discourage the use of encryption keys which are unavailable to the Commission and NTIA (because a key is capable of self-evolution or similar self-modification techniques), and I would strongly advise any user proposing signal encryption (either FDMX, TDMX, content, or multiple/compartmentalized encryption) furnish the Commission and NTIA with copies of its keys before authorization is granted.

Furthermore, I would add that the Commission must consider, as part of any new rules for such a 'Shared Test-Bed Service," that protection of intellectual property rights be preserved as many of these innovations are likely to be economically sensitive to developers and to the national security. To this end, I have no problem with the use of proprietary technologies in association with this idea - in fact, it would seem to go hand-in-hand with such an idea. Furthermore, private resource use should not be discouraged in conjunction with this idea, and incentives aren't necessary either; development of a new technology is its own incentive.

The metrics of program should be determined within the context of each technology being tested, it would be premature - indeed, impossible - to say what constitutes success when the thing measured has heretofore never existed. The metrics of a particular program's success should be established in the application and instrument of authorization (such that preapplication consultation with the FCC might be considered an essential aspect of this new service), and this should include language for future program implementation on different bands or new development within an existing band if certain milestones within the initial authorization are met. This way, a single instrument of authorization can be used for a complete program; furthermore, such instruments of authorization are always modifiable, so if a particular program user determines changes are necessary, those can be accomodated. If a particular program is successful, expansion of the program seems the next logical step unless concluding a program is part of the metric for determining its success.

With reference to FCC Question 17, I believe my answer above concerning the relationship between

a program user and the Commission already fully addresses Question 17. I believe ongoing regulator-participator contact is essential to this proposed 'Shared Test-Bed Service.' I also believe this addresses FCC Question 18, in that, if FCC personnel are closely associated with users during any given program, the conclusions and outcomes will already be known to the Commission. On the whole and in principle, I like this idea. Give it a shot - if users like it, keep it; if they don't, dump it.

I hope these comments are helpful.

Respectfully Submitted:

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COMMENTER - 14 JUNE 2006...